

# FORMAL, NON-FORMAL AND INFORMAL EDUCATION: CONCEPTS/APPLICABILITY

**Claudio Zaki Dib**  
**Institute of Physics**  
**University of São Paulo, Brazil**

Presented at the “Interamerican Conference on Physics Education”, Oaxtepec, Mexico, 1987.  
Published in “Cooperative Networks in Physics Education - Conference Proceedings 173”,  
American Institute of Physics, New York, 1988, pgs. 300-315.

## *ABSTRACT*

Educative system classification proposal, comprising formal, non-formal and informal education, their features and relations at the level of concepts and practical utilization is presented. Considering the problems arising from formal education, alternatives that displace the “center of gravity” from formal, to non-formal education processes are herein advanced, with regard to the advantages offered by the latter. The aspects relating to the creation of non-formal systems and their perspectives are also analyzed in the search for solutions to our current educational problems.

## *INTRODUCTION*

In educational literature, the study of alternative education systems often mentions “open systems”, “non-formal education”, “distance learning”, “non-conventional studies”, among other terms. In some cases these are employed as synonyms, whereas in others, there is no agreement as to their meanings, making it impossible to reach a consensus for their concepts. A more precise definition of such concepts is fundamental, as is their possible classification, aimed at better understanding and practical utilization. We shall therefore analyze the concepts of formal, non-formal and informal education, in an attempt to define their features, advantages, limitations and inter-relations.

## *FORMAL EDUCATION*

**Formal education** corresponds to a systematic, organized education model, structured and administered according to a given set of laws and norms, presenting a rather rigid curriculum as regards objectives, content and methodology. It is characterized by a contiguous education process named, as Sarramona<sup>1</sup> remarks, “presential education”, which necessarily involves the teacher, the students and the institution. It corresponds to the education process normally adopted by our schools and universities. Formal education institutions are administratively, physically and curricularly organized and require from students a minimum classroom attendance. There is a program that teachers and students alike must observe, involving intermediate and final assessments in order to advance students to the next learning stage. It confers degrees and diplomas pursuant to a quite strict set of regulations. The methodology is basically expositive, scarcely relating to the desired behavioral objectives - as a matter of fact, it is but seldom that such targets are operationally established. Assessments are made on a general basis, for

administrative purposes and are infrequently used to improve the education process. Their character is, for the most part, punitive, obeying a mono-directional methodology that fails to stimulate students and to provide for their active participation in the process, though in most cases, failures are ascribed to them. The setting-up of a formal education system does not consider the students' standards, values and attitudes that are relevant to the education system which, generally, is not tested or assessed at the level of student acceptance, as well as for efficacy and efficiency. The same methodology - poor, ineffective, scarcely creative - is adopted, whether the universe contains 10, 50 or 200 students. Other institutional resources than the expositive method are seldom employed and, when they are employed, the basic learning principles are disregarded. The subjects are presented in isolated blocks, whether as to content or methodology. Thus, for instance, in the case of Physics, for techno- administrative reasons the subject is divided into theory, laboratory and exercises and, their adequate order and correlation is disregarded. In general, the objectives aimed at the personal growth of students are neglected and, the basic principles of learning fail to be considered in the planning and the performance of education systems. It is not excessive to say that in the case of formal education, for the most part teachers **pretend** to teach; students **pretend** to learn; and, institutions **pretend** to be really catering to the interests of students and of the society. Thus, generally, formal education cannot disguise its aloofness from the real needs of the students and of the community.

### ***NON-FORMAL EDUCATION***

As seen, formal education has a well-defined set of features. Whenever one or more of these is absent, we may safely state that the educational process has acquired non-formal features. Therefore, if a given education system is not presential most of the time - non-contiguous communication - we may say that it has non-formal education features. Likewise, non-formal education characteristics are found when the adopted strategy does not require student attendance, decreasing the contacts between teacher and student and most activities take place outside the institution - as for instance, home reading and paperwork. Educative processes endowed with flexible curricula and methodology, capable of adapting to the needs and interests of students, for which time is not a pre-established factor but is contingent upon the student's work pace, certainly do not correspond to those comprised by formal education, but fit into the so-called **non-formal education**. Proportionally to the number of formal education factors that are absent from a process, we find several grades of non-formal systems.

These preliminary considerations emphasize the need clearly and objectively to establish the possible basic features of non-formal education. This, however, is not an easy task. As remarked by Ward and collaborators<sup>2</sup>, "A comprehensive and standard definition of non-formal education is not yet available in common usage. Perhaps such a definition will not emerge until after much more study of the educational issues and potentialities inherent in the variety of experiences now called non-formal education has been done." As regards the distinction between both educational models, the same authors point out that "the implied and real distinctions between formal and non-formal education should be seen within a systematic and holistic view of education." In the same paper, they remark that education remains relatively undefined because the non-school view of education has merited little interest and responsibility from educational planners. Notwithstanding the above, even a preliminary analysis of the existing non-formal systems reveals the constant presence of two features: (a) - centralization of the process on the student, as to his previously identified needs and possibilities; and, (b) - the immediate usefulness of the education for the student's personal and professional growth.

Non-formal education seems better to meet the individual needs of students. According to Ward, et al.<sup>3</sup>, a systematic analysis of the main features of non-formal education, diversely from formal schooling, shows that participants are led to non-formal programmes because these offer the expertise that they hope to acquire and the necessary assistance for a better understanding of their own selves and of their world. It is but natural that if the education offered by schools is without value for a student's life and fails to prepare him to deal with daily problems, he will simply refuse to participate in programmes that may finally disappear or, at best, have to be reformulated to gain significance for students. As non-formal education is focused on the student, it perforce presents flexible features as regards the initially established and adopted procedures, objectives and contents. It is therefore quicker to react in face of the changes that may affect the needs of students and of the community.

With basis on these preliminary considerations we may easily conclude that the non-formal label encompasses a wide variety of educational systems endowed with features that either lead them towards or away from the established formal systems. Thus, we might infer the existence of a certain degree of continuity linking the formal and the non-formal education. This view is not limited to a merely academic interest because, as will be seen below, it is an extremely objective and practical one in the search for alternative solutions to educational problems.

Given its scope, non-formal education is comprised of an ample diversity of educational situations, many of which have played a significant role in the renewal of educational systems. We shall now analyze three educative processes, namely: “**correspondence learning**”, “**distance learning**” and “**open systems**”, which, because of their features fall within the scope of non-formal education.

**Correspondence Learning:** organized, structured correspondence schools date from more than one century. Several works<sup>4</sup> and authors<sup>5</sup> mention that in 1856, in Berlin, Toussaint and Langenscheidt founded a correspondence languages course. In 1886, in England, a graduate studies correspondence course was introduced. A “Society to Encourage Study at Home” was organized in 1873, in Boston, and the first formal experience took place in 1883, in New York, the “Correspondence University”. In several countries similar efforts were made, named “*enseignement par correspondance*” in France, “*fernUntersuch*” and “*fernStudium*” in Germany, “home study”, “tuition mail” and “postal tuition” in England; “*ensino por correspondência*” in Portugal; “*ensenanza por correo*” and “*ensenanza por correspondencia*” in Spain. Nowadays, there is a large number of correspondence schools all over the World, encompassing studies that range from basic education to university studies, including a wide variety of subjects in the professional area.

Correspondence course participants are found in all age brackets and economic-social classes. But, which are the main features of correspondence learning? It is a planned and systematized activity, based on the preparation of printed educational materials which are forwarded to students who are physically separated from the teachers who can give but a limited assistance to them. Correspondence learning is an individualized learning system that allows students to proceed at their own pace, according to their interests. The institutional materials are for the most part printed and are generally prepared by a teacher who has not enough didactic and technical knowledge to prepare top quality educational material. Although a number of correspondence courses currently offer other types of instructional material - audio-tapes and videotapes, kits, etc. - we shall for classification purposes solely consider the printed materials offered by correspondence courses. We shall reserve the name “distance learning” to the courses prepared on a high technical level, by a multidisciplinary team, administered by a relatively large

institution, comprising a wide variety of educational materials. Correspondence courses generally establish a bi-directional communication by mail, supported by the teacher who corrects the paperwork, offers guidance and the requested explanations. A degree may or may not be obtained and there is no pressure - the student's motivation is the basic factor for the program's success. It is not difficult to see that correspondence courses do not incorporate several features of the formal education and are thus classified in the field of non-formal education.

**Distance Learning:** According to Holmberg<sup>6</sup> "Distance study is learning supported by those teaching methods in which, because of the physical separateness of learners and teachers, the interactive, as well as the preactive phase of teaching is conducted through print, mechanical or electronic devices." Distance learning is based on non-contiguous communication<sup>7</sup>, that is, "the learner is at a distance from the teacher for much, most or even all the time during the teaching-learning process". Based on this definition, we may infer that the concept of distance learning is wider than that of correspondence learning, with which it is sometimes confused. Thus, Butts<sup>8</sup> remarks that "the rapid adoption, over the past 10 years, of the phrase 'distance learning' to replace 'correspondence courses' would seem to reflect the incorporation of media other than print (and particularly the medium of broadcasting); the fresh impetus coming from research into individualized learning and self-instructional methods; the broadening of the social base for open learning systems; and the development of courses and qualifications designed specifically to meet the needs of distance learning students." The concept of open learning systems used by Butts is wider than that of distance learning, as below analyzed.

In sum, according to Holmberg<sup>9</sup>, the three universally accepted features of distance learning are as follows:

- "1. - Typical of the whole distance study is that it is based on **non-contiguous communication**, i.e., the learner is at a distance from the teacher for much, most or even all of the time during the teaching-learning process.
2. - A **pre-produced course, as self-instructional** as possible, printed and/or consisting of presentation brought about by other means than print (audio or video-tapes, radio or TV programmes, etc.) guides the study.
3. - Organized non-contiguous two-way communication is a constitutive element of distance study. It is in most cases principally brought about by assignments for submission for the students to solve and answer and for the tutors to comment on (in writing or on audio-tape), but freer forms of communication also occur."

The organization and administration of distance learning significantly differs from those of formal education. Thus, for instance, no students attend classes at the institution, except for occasional visitors. There are no classrooms; instead there are places where multidisciplinary teams comprised of redactors, authors, audio-visual experts, and so on, plan and compose the materials that will be used. In distance learning we find no "academic semesters". The students may at will discontinue studies whenever he needs or wants to do so. As per Holmberg<sup>10</sup>, distance learning is comprised of the following basic activities:

- " - the development and technical production of distance study courses;
- the distribution of course materials;
- the non-contiguous two-way communication between students and tutors/counselors; and
- record-keeping."

Holmberg also reminds us that, in some case, other activities may be required, as for instance:

- “ - course certificate
- examination and degrees
- supplementary face-to-face contacts between students and tutors/counselors.”

A large experience has been obtained over these years through application of distance study at various levels, for different target populations. Our main concern in this Chapter relates to the use of distance study for higher level education. A well-succeeded example of such use is the Open University.

As pointed out by Oliveira<sup>11</sup>, Open Universities are generally based on distance study through one or more communication media, such as radio, TV and the printed press. They mostly formulate the instructional materials used in their courses, for the most part employing a distance tutoring system that contracts teachers to provide the required support to the performance of supplementary activities. The assessment and graduation requirements are not uniform and in some cases, the diplomas are on a par with those issued by regular universities, whereas in others we find that certain restrictions are made with regard to given courses. There are also open universities which are in no way concerned with the validation or equivalence of the offered courses and of their diplomas to those given in the existing formal universities. Open universities need their own organizational structure that differs widely from that of traditional universities. According to Oliveira<sup>11</sup>, “The nature of their tasks and the *modus operandi* of open universities provide a mixture of academic culture and industrial activity”, requiring the cooperation of professionals from varied backgrounds to act as redactors, educational planners, professors specializing in the different fields, audio-visual experts, and so on, thus displaying a multidisciplinary character. The materials forwarded to the students, comprising printed texts, audio or videotapes, kits, etc., is usually validated prior to their utilization, so as to ensure a high degree of efficacy and efficiency. Oliveira<sup>11</sup> also notes that “in countries with a shallower academic sedimentation, open universities seldom have their start on an academic basis and this results in their remaining for the most part on the fringes of the educational process” -an extremely significant aspect which will be relevant to the proposal that will be submitted below.

The British Open University may be mentioned as being the most successful among all open universities. As described by Grayson<sup>12</sup>, the British Open University founded on 1969 was created in order to remain open to new people, methods and ideas. The traditional matriculation requirements were abolished and efforts were made to attract working students. Approximately 63.000 students enrolled on 1980, and its syllabus includes printed materials, audiotapes, reading, study guides, self-assessments and radio and TV programmes. Tutorial assistance and counseling are available in about 280 study centers throughout Great Britain. We must include here a mention to the high quality level of the produced instructional resources, as well as to the disposition shown by the planners of the British Open University always to remain receptive to non-conventional programmes. The courses encompass six areas, namely: education, mathematics, sciences, social sciences, and technology. Their duration is approximately one year. The success of the British Open University led to the creation of several open universities in France, in Germany and in the United States as from 1971, without even mentioning the several Latin-American efforts in this field. Oliveira<sup>11</sup> mentions the pilot-experiment of the China Open University which is planning to enroll approximately two and a half million students. According to that author, “despite a variety of forms and contexts, Open Universities illustrate the many possibilities for widening the scope of higher level education.” As to the expression “Open” he remarks that it may relate to (a) - the moment in which the student enrolls on a course for which the required credits system has been extremely simplified; (b) -the

educational process itself, as well as the range of options offered to the students as regards programmes and courses; (c) - the fact that the course is taught at a distance; and (d) - the fact that although not generally providing final degrees, they offer to students the possibility and the required flexibility to stay on or to leave the courses.

**Open Systems:** The third instance of non-formal education corresponds to **open systems** or **open learning**, which have drifted much farther apart from the features of formal education, creating a wide, deep rift. As remarked by Butts<sup>8</sup>, “open learning systems are defined as those which offer students a measure of flexibility and autonomy, to study the programmes of their choice when and where they wish, and at a pace to suit their circumstances. “The features ascribed to open systems, by this author, necessarily set them up as non-formal education instances, jointly with correspondence learning and distance study. As Butts points out, “...distance learning is seen ... as one type of open learning.”

As mentioned before, correspondence learning can be deemed a type of distance learning and, as distance learning can be said to be an instance of open systems, we conclude that this latter is in the most widely encompassing class among non-formal education examples.

Some authors also consider rather freely the concept of open education - as synonymous with open systems. As Yalli<sup>13</sup> says, “the idea of openness may be twofold: open as to structures, that is, a rupture of the physical barriers of educative institutions, so as to provide free access to schools; or open as to methodology and learning resources.” And, he concludes: “The essential fact about open education is that it does not matter how knowledge is acquired, all means are valid. The open learning system aims at the formation of independent students who have capacity for self-discipline and a high capacity for synthesis and for analysis.” This author defines that in an open system, learning is the function of an interaction between the student and the actual world.

### ***INFORMAL EDUCATION***

Informal education is quite diverse from formal education and, particularly, from non-formal education, although in certain cases it is capable of maintaining a close relationship with both. It does not correspond to an organized and systematic view of education; informal education does not necessarily include the objectives and subjects usually encompassed by the traditional curricula. It is aimed at students as much as at the public at large and imposes no obligations whatever their nature. There generally being no control over the performed activities, informal education does not of necessity regard the providing of degrees or diplomas; it merely supplements both formal and non-formal education.

Informal education for instance comprises the following activities: (a) - visits to museums or to scientific and other fairs and exhibits, etc.; (b) - listening to radio broadcasting or watching TV programmes on educational or scientific themes; (c) - reading texts on sciences, education, technology, etc. in journals and magazines; (d) - participating in scientific contests, etc.; (e) attending lectures and conferences. There are many instances of situations/activities encompassed by informal education, from those that may take place in the students' homes - such as scientific or didactic games, manipulation of kits, experiments, reading sessions (biographies, scientific news, etc.) - to institutional activities - lectures in institutions, visiting museums, etc.

It is easy to see that the higher the degree of systematization and organization involved in informal education activities, the nearer it will be to non-formal education. This is a relevant fact inasmuch as it suggests the possibility of transition from informal to non-formal. We must ponder that, considered by itself, we cannot generally assert whether an educative action belongs to the formal, to the non-formal or to the informal universe. For instance, a visit to a Science Museum may be an informal education instance if arising from a personal and spontaneous decision by a student, as it is not directly related to his scholastic activities. However, if such a visit is part of an established curriculum, requiring from students a written report and including assessments by the teacher, or tutor, then it will probably be an activity associated to either the formal or to the non-formal education.

### ***THE TRANSITION FROM FORMAL TO NON-FORMAL***

An analysis of formal, non-formal and informal education features suggests the existence of a range for transition from formal to non-formal education, as well as from non-formal to the informal one.

Let us analyze the first of these. Although formal education corresponds to a well structured, systematized system governed by stringent norms and laws, and so on, it is possible to consider more and less formal education, according to the amount of rigidity detected in such features. If a formal instance provides a curriculum endowed with a certain degree of flexibility, in which “complying with the program” is not vital and having a methodology that is pliant enough to meet the students’ characteristics, we can reasonably say that this instance is less formal than another where these features are set on a rigid mold. Let us quote another example: when two formal education instances present identical features, except for one sole feature of one of these - communication is only partially contiguous - it is reasonable to consider that it is less formal than the first. Thus, it is possible to discern a certain gradation as regards the formality of educative systems and by extension, it will be possible to depart from a formal system and, gradually, arrive at a non-formal one, by making some features more flexible, by substituting or eliminating others. This would then be a transition from formal to non-formal and it also suggests the existence of further transition, a sort of “continuity”. This line of thought also applies to the transition from non-formal to informal.

Yalli<sup>13</sup> remarks that an open education system can be adopted within the traditional structures of schools: “Students determine the pace of learning and are totally free to move around in classrooms, searching for the best place to stay and learn, even if it is outside the school premises and, to make use of available means to dominate the subjects that catch their interest.” Wouldn’t this be a kind of transition from formal to non-formal? Likewise, it is possible to depart from a non-formal system to arrive at an informal one, by gradually suppressing a few of the former’s basic features, granting students total freedom as to the choice of objectives, content and activities that will be carried out, as well as to when and how much time will be granted to each.

It is not farfetched to consider that whereas in formal structures the process focuses on the professor/school system, in non-formal education the focus is placed on the student - objectives, programmes, methodologies are developed with basis on their needs and characteristics. All activities are aimed at the students, from global strategies, to concern with formulation of instructional materials. In going from formal to non-formal education, we are perforce displacing the “center of gravity” from the process of the **professor/school system**, to the **student**.

The proposed view, considering a transition from formal to non-formal education that still preserves a certain continuity, and from the latter to the informal education, represents more than a mere academic interest, as it constitutes an action plan that will be extremely useful to create and introduce new concepts into the educative process, as we shall explain below.

### ***WHY IS NON-FORMAL EDUCATION NECESSARY?***

A rather extensive literature currently emphasizes how inadequate formal systems are to meet - effectively, efficiently - the needs of individuals and of the society. The need to offer more and better education at all levels, to a growing number of people, particularly in developing countries and, the scant success of current formal education systems to meet all such demands, has shown to a growing number of researchers the urgent need to provide alternatives that escape from the formal standards, in order to solve these problems. As Ward, et al.<sup>14</sup> point out, “Piaget, Freire, Havighurst, Coleman, Brookover and literally hundreds of other psychologists, educators, sociologists and philosophers have indicated clearly where education should be and where, instead it wallows in inefficiency, crust rigidity and stubbornness. Most of those critics advocate changes of the existing educational system and there is ample evidence of the need for dramatic efforts in this area.” And, they add: “There are two sets of alternatives to be sought: the first and most historically venerable is the improvement of the schooling establishment itself. While not at all a new or untried idea, its past record of relatively low success does not inspire confidence. The second sort of alternative to schooling as it is known today lies in the development of resources for learning outside the school.” In other words, they refer to the strategies offered by non-formal education, emphasizing that in one way or another most critics disparage formal education for its incapacity to fulfill the actual needs of students, whereas non-formal education is based on the notion that in order to obtain effective results it is necessary to identify and provide for the real needs of people. After all, how can we justify the adoption of formal education if, as Oliveira<sup>15</sup> points out, “in large cities students spend more time in buses than in the colleges and many others cannot even get there, hindered by costs and distances.”

The inadequacy and the incapacity of formal educational models to meet the needs of individuals and of society at large must lead to the search for alternatives that escape that mold. As said by Ward, et al.<sup>16</sup>, “The legitimacy of schools is based upon their role as credentialing agencies while non-formal education will derive its legitimacy only from its ability to meet real social needs.”

The rigid structure of formal schools, mainly based on laws and regulations than on the real needs of students, offering a curriculum that leans away from individuals and from society, far more concerned with performing programmes than with reaching useful objectives, obeying a rigid set of clerical-administrative procedures, has long since fallen short of meeting individual and social needs. Non-formal education, starting from the basic needs of students, is concerned with the establishment of strategies that are compatible with reality.

### ***FORMAL VERSUS NON-FORMAL EDUCATION***

The issue initially relates with a probable conflict between formal and non-formal education. While the former has been firmly established for quite a while and its traditions are accepted by society, non-formal systems in their most advanced forms are only now emerging. According to Ward, et al.<sup>17</sup>, the question is, what to do about them: “Allow them to continue and develop as competitive, alternative systems; repress them; adopt the formal educational institutions for the



non-formal model; or integrate the whole into a broader concept and plan for educational development?"

Considering that success, even when limited, should not be disregarded, in the case of non-formal education it is necessary that formal education should analyze the reasons that led to this success and, if possible, incorporate many of its proposals, structures and programmes. Oliveira<sup>18</sup>, suggests that "instead of attracting students to the classroom, universities should be accredited and authorized to offer distance learning as well, establishing, themselves, the equivalence of courses, teaching loads and requisites for enrollment and graduation, should that be the case."

It seems that there's no doubt that no competition should exist between formal and non-formal systems, nor should they be considered conflicting systems. After all, one is not necessarily the antithesis of the other and in the educational universe there is rather more than enough room for both. The analysis above, suggesting the presence of a certain continuity in the transition from formal to non-formal systems, leads to the proposal of an strategy in which **non-formal and informal elements would be gradually incorporated by formal education, so as continuedly to meet the needs of individuals and of the society**. Thus, the existing structures could be used and would little by little adopt and adapt non-formal propositions. It would be a politically and technically feasible strategy, allowing a gradual and painless transition. This would of course require the adoption of a series of measures with view to organize workteams in charge of planing that transition, so as to render it compatible with the reality that prevails within each institution and assist institutions and teachers as regards the required technical-administrative re-structuration and, to organize with basic on multidisciplinary teams the necessary instructional materials.

We shall now present three transitions from the formal to the non-formal model with different degrees of alterations. In the first instance, a formal learning institution detects in some classes an insufficient level of pre-requisites (for instance, the usual knowledge of calculus required from students who want a degree in Physics). In that case, the program that will be developed cannot ignore that fact, as is usually the case with formal models. Instructional materials, of the self-instruction type, previously prepared by a multidisciplinary team - mathematicians, redactors, education psychologists and technologists - will be given to the students for individual utilization (in small groups) whether in the classroom, or not - for instance somewhere else in the campus appropriate for this type of self-instruction work - and, especially, at home. The students will join the Physics class after having acquired the necessary knowledge, as comproved by assessment procedures. It is natural that the development of the original program must be re-structured as regards time, so as to consider the alterations arising from the introduction of non-formal elements into the overall framework. It must be pointed out that the resulting system would not be strictly formal, since it is in an initial stage of transition from formal to non-formal. Let us now consider a second instance in which this transition is deeper, that is, the rupture with formal features is greater. The fact that an university student requires an excessive amount of time to arrive at the campus is detected; a careful study by a multidisciplinary team - let us call it "team for non-formal studies implementation" - suggests, as a basic strategy, that by means of previously prepared instructional materials the program should be restructured so as to enable student to perform part of his or her work at home and only go to the campus when his or her presence should be required to carry-out supplementary work - such as experimental tasks, teamwork, meetings with the faculty for clarifications and required explanations, and son on. Some of these restructurations relating with technical-administrative issues, as for instance control plans, assessments, etc., must also be implemented. In this case, the system approaches

non-formal elements although supported by a formal organization. The third instance submitted to analysis relates to a formal institution which, in the case of certain night-course programmes, has to provide for an extremely heterogeneous population presenting a diversity of pre-requisites, geographically distributed far and wide, coming from places distant from the campus. The required analysis and study of this problem would lead the team for non-formal elements implementation to suggest a more radical transformation of the system to a distance learning model which would be mostly developed at students' homes by means of self-instructional materials and study guides, as well as previously prepared distance control systems. A two-way communication by mail would enable the correction of the students' works and the follow-up of their progress. Phone call communications would be used for additional guidance and clarifications, as would visits to the institution for personal contact between students and professors and to perform some supplementary work, either on week-ends or vacation periods. In this case, the transition from formal to non-formal is more widely encompassing, leading to the creation of a program endowed with non-formal features and supported by an originally formal institution.

The above instances illustrate the three types of transition from formal to non-formal, each of which requiring different efforts and investments. They are part of an initial strategy to be considered for implementation of non-formal programmes. The second strategy would of course correspond to the creation of **non-formal** institutions which, as to their physical, technical and administrative organizations would be specially conceived to offer non-formal courses and also act as a technical support center for the logistics, administration, etc., of formal institutions, with view to a gradual transition to the non-formal model.

### ***THE CREATION OF NON-FORMAL MODELS***

As seen, the transition from formal to non-formal education may basically occur in two ways: (1) - the founding of institutions, as Open Universities, specifically destined to the creation and to the implementation of non-formal systems; and (2) - the gradual advance of non-formal elements into the existing formal structures. The organization of a non-formal institution requires a large initial outlay to set-up the physical structure and the human resources dedicated to strategic definitions, preparation of instructional materials and the formulation of distribution and control plans. This, however, cannot take place without strong political support. As Perry<sup>19</sup> reported, when the decision of organizing the British Open University was taken opposition was met within and without governmental institutions: "This decision was received with skepticism, indeed with scorn and ridicule, by virtually the whole of the academic establishment, by almost the whole of the national press, and by at least half of the political world." As has already been noted, a non-formal institution should not, it at all possible, be organized apart from the existing formal institutions and should endeavor to obtain political and technical support for its implementation. Bordenave<sup>20</sup> advises that "We must not consider distance learning as an independent, isolated process, but as one more modality within the general strategy of education. It not only must refrain from trying to replace presential modalities - and school, itself - but must supplement and enrich them." As this author advances, distance learning systems must have a supplementary character, given the lack of auto-didactic experience found in large segments of the student population.

The other proposed alternative - gradual introduction of non-formal elements into a formal structure - requires the interest and the availability of a formal institution and of qualified personnel willing to work in that program. On this head, the faculty of the institution could and

should be the movers of this process. They could be trained for this task by technical teams of non-formal institutions and so acquire the body of knowledge needed to perform in the field of non-formal strategies, in the preparation of self-instruction materials - texts, audio and videotapes, exercises, and so on - study guides, assessment and follow-up materials, among others. Thus, the organization of non-formal institutions serves two purposes at once, namely, (a) - to create and implement non-formal courses and programmes; and, (b) - to assist formal institutions in their gradual transition to the non-formal model.

The success of non-formal models lies on: (a) - the initial interest level and motivation of students; (b) - the quality of educational materials capable of upholding a high student motivation level and effectively to meet their expectations and needs, and of its global strategy; and, (c) - the scheme to provide students with institutional support. This requires the creation and implementation of non-formal institutions preceded by careful planning and followed by an adequate execution and control which performance involves a multidisciplinary team comprised of psychologists, education experts, professors of the several subjects, sociologists, audiovisual resources experts, redactors, an arts/graphics team, administrators, expert printers, and so on. With regard to such requirements, the educational technology conceived as the application of scientific fundamentals to the solution of educational problems has a significant role to play. Its contribution cannot be disregarded in this proposal submitted by Dib<sup>21</sup>, which contains strategies and detailed procedures for the development and utilization of learning systems, particularly in the field of Physics, which constitute the basic elements for the organization of non-formal institutions and programmes.

It must be herein pointed out that, for organizing a non-formal institution, the existing non-formal models that have been successful will be unavoidably copied, without the required caution to verify to which extent they effectively fit the real needs of the country and of students. Thus, for instance, if despite being in an University, the students have no reading habits or a certain degree of "learning autonomy" - with the meaning of being capable of objective reading, of doing exercises and solving problems, etc., or else, to listen/watch audio and videotapes with a modicum of efficiency - the success of any non-formal program whatsoever will be in jeopardy. Authors like Cornwall<sup>22</sup> emphasize the importance of independent learning. "...independence, in common parlance, implies that the individual has a large degree of choice, considerable autonomy in decision-making affecting his or her aims and activities, and the values he or she puts on them." The creation of non-formal education programmes must consider, at the planning and elaboration of instructional materials, the independent learning level of students. Systems made for students with a high capacity for independent learning will probably fail to succeed in the case of students who have a low capacity. Thus, the transfer of non-formal model strategies from one country to the other, from one institution to another, must be carefully made. In "The Transfer of Educational Technology in the Scientific Area", Dib<sup>23</sup> emphasizes that "...the transfer of educational models and materials to those developing countries faces risks similar to those incurred in biological transplants. The systematic recurrence of 'rejections' in the last two decades, coupled with a significant decrease of the 'average life of transplants' is symptomatic, showing that not all variables intervening in the transfer process have been duly appreciated." Thus, the fact that a given distance learning course comprised of subjects such as Basic College Physics, for instance, has succeeded in one country does not mean that it will equally succeed in some other country, meeting its educational, social, economic and cultural features.

As Ward, et al.<sup>24</sup>, point out, non-formal education is beset by varied problems. The first involves the trend found in developed and developing countries alike blindly to trust the usage of instructional technology resources, particularly mass ones. The second involves the problems

relating to the elaboration of non-formal systems prior to an analysis of cultural factors, to the definition of targets and to a survey of the available resources. The third is the breeding of unavoidable red-tape conflicts and political disputes that will hinder the establishment of non-formal systems. In the fourth place, the 'sale' of such systems to developing countries promising to fulfill their needs will fail to do so given the limited resources of personnel, of financing funds and materials.

### ***PERSPECTIVES OF NON-FORMAL EDUCATION***

Despite the likely problems besetting the planners of non-formal systems, we can affirm that given their very features - systems created to meet the needs of individuals and of the society - the future of non-formal education seems promising. Ward and collaborators<sup>25</sup> suggest the promise of non-formal education with regard to their professionals and leaders. Firstly, "... non-formal education promises to be a more effective approach to relating education to national development." Secondly, "...non-formal approaches offer education that is functional and practical, i.e., related to the life-needs of the people." Thirdly, "...non-formal education seeks to maintain a benefit/cost consciousness of what it does in order to provide the most effective and purposeful consequences with the most efficiency." Fourthly, "...is the inherent commitment to seek innovative means to achieve the goals." Fifthly, "...non-formal education offers a more eclectic, multidisciplinary approach to the problem of development in a country." Sixthly, "...non-formal education promises to produce short-term effects as well as long-term achievements." And last, but not least, the seventh promise: "...non-formal education assists in the decision-making of educational and development funding agencies on both a national and international level."

It cannot be denied that with basis on the varied instances of its successful implementation, as well as on its ethical and technical foundations, non-formal education offers an answer to the quest of alternatives to solve the educational problems we have, particularly in developing countries.

### ***REFERENCES***

1. J. Sarramona, "Tecnologia de la Ensenanza a Distancia" (CEAC, Barcelona, 1975), p.20
2. T.W.Ward, F.D. Sawyer, L.McKinney, and J. Dettoni, "Effective Learning: Lessons To Be Learned From Schooling, in "Effective learning in Non-Formal Education", Org. T.W. Ward and W.A. Herzog Jr. (East Lansing, Michigan State University, 1974) p.38
3. Ibid. p.14-59
4. Encyclopoedia Brittanica, ed. W. Benton (Enc.Brit.Inc.Chicago, 1956) p.476-477
5. J. Sarramona, op.cit. p. 24-25
6. B. Holmberg, "Status and Trends of Distance Education" (Kogan Page, London, 1981) p.11
7. Ibid p. 11

8. D. Butts, "Distance Learning and Broadcasting", in "Distance Learning and Evaluation" ed. F. Percival and H. Ellington (Kogan Page, London, 1981) p. 26
9. B. Holmberg, "Distance Study in Educational Theory and Practice", in "Educational Technology Twenty Years On", ed. G.T. Page and O. A. Whitlock (Kogan Page, London, 1979) p.72
10. B. Holmberg, "Status and Trends of Distance Education" (Kogan Page London, 1981) p. 97-98.
11. J.B.A. Oliveira, "Teleducação e Ensino Superior" in "Anais do XVI Seminário Brasileiro de Tecnologia Educacional (ABT, Rio de Janeiro, Vol. II, 1986) p.16
12. L. Grayson, "New Technologies in Education" in Encyclopedia of Educational Research, Vol. 3, ed. H.E. Mitzel (Free Press/MacMillan, New York, 1982) p.1340
13. J.S Yalli, Tecnologia Educational, 74, 51 (1987)
14. T.W.Ward, et alii, op.cit. p.37
15. J.B.A. Oliveira, op.cit. p.19
16. T.W. Ward, et alii, op.cit. p. 38
17. T.W.Ward, et alii, op.cit. p. 45
18. J.B.A. Oliveira, op.cit. p.21
19. W. Perry, "The growth of distance learning" in "Education of Adults at a Distance, a Report of the Open University's Tenth Anniversary International Conference, ed. M.W. Weil, (Kogan Page/ The Open University Press, London. 1981) p.7
20. J.D. Bordenave, "Comunicação participativa na educação formal e não formal" in Anais do AVI Seminário Brasileiro de Tecnologia Educacional ( ABT, Rio de Janeiro, Vol. I, 1986) p. 81
21. C.Z. Dib, "Tecnologia de la Educación y su Aplicación al Apredizaje de la Física" (CECSA, Mexico, 1981) p.72-83
22. M. Cornwall, Putting it into Practice: Promoting Independent Learning in a Traditional Institution, in Developing Student Autonomy in Learning, ed. D. Bund (Kogan Page, London, 1981) p.190
23. C.Z.Dib, "Programmed Learning and Educational Tecnology", vol.17 3, p.250-256 (1980)
24. T.W. Ward, et alii, op.cit., p.51-52
25. T.W.Ward, et alii, op.cit., p.49-51.